

## FULLY AUTOMATIC RAPID MICROSCOPE SLIDE SCANNER

### Abstract

[76] Apparatus for and method of fully automatic rapid scanning and digitizing of an entire microscope sample, or a substantially large portion of a microscope sample, using a linear array detector synchronized with a positioning stage that is part of a computer controlled microscope slide scanner. The invention provides a method for composing the image strips obtained from successive scans of the sample into a single contiguous digital image. The invention also provides a method for statically displaying sub-regions of this large digital image at different magnifications, together with a reduced magnification macro-image of the entire sample. The invention further provides a method for dynamically displaying, with or without operator interaction, portions of the contiguous digital image. In one preferred embodiment of the invention, all elements of the scanner are part of a single-enclosure that has a primary connection to the Internet or to a local intranet. In this embodiment, the preferred sample type is a microscope slide and the illumination and imaging optics are consistent with transmission mode optics optimized for diffraction-limited digital imaging.